UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/718,924	11/22/2000	Timothy Roy Block	ROC9-2000-0123-US1	2147

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EXAMINER
REILLY, SEAN M

ART UNIT	PAPER NUMBER
2153	

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/718,924	BLOCK, TIMOTHY ROY
	Examiner	Art Unit
	Sean Reilly	2153

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _13 February 2006_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-9,12,13,15-17,19 and 21-24_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _4 and 5_ is/are allowed.

6)☒ Claim(s) _1,6-9,12,13,15-17 and 19_ is/are rejected.

7)☒ Claim(s) _2,3 and 21-24_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office action in response to Applicant's amendment and request for continued

examination filed on February 13, 2006. Claims 1-3, 4-9, 12-13, 15-17, 19, and 21-24 are

presented for examination. All independent claims have been amended.

Claim Rejections - 35 USC § 101

1. Applicant's amendments to independent claim 9 have limited the claims to signal bearing

media comprising "recordable type media" as defined in Applicant's specification on pg 13.

Accordingly the previous 101 rejection is withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2. **Claims 1, 6-9, 12-13, 15-17, and 19 are rejected under 35 U.S.C. 103(a) as being**

   unpatentable over Hamilton et al. (U.S. Patent No. 6,392,993, hereinafter "Hamilton")

   and IBM Technical Disclosure Bulletin (June 1996, volume 39, issue number 6, pgs 63-

   68; hereinafter IBM) and Novaes et al. (U.S. Patent Number 6,973,473; hereinafter

   Novaes).

   In considering claim 1, Hamilton discloses an apparatus comprising:

At least one processor (inherent), a memory coupled to the at least one processor (inherent), and a network interface (inherent) that couples the apparatus to a plurality of other computer systems (col. 27, line 33-40, "sending system 196"), wherein the apparatus and the plurality of other computer systems form a distributed network of computers that cooperate via ordered messages to perform a task (col. 5, lines 55-60, "the invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network"; col. 27, lines 53-54, describing that each message (the messages in Hamilton are actually portions of messages, called "packets") has "sequence numbers"); and

A distributed network communication mechanism residing in the memory and executed by the at least one processor (inherent to allow the master to communicate with the other computer systems in the group), the distributed network communication mechanism including a sliding send window that communicates at least one ordered message to a plurality of the other computer systems without waiting for an acknowledge message from any of the plurality of other computer systems before sending out the next ordered message (col. 27, lines 51-65, describing that a group of messages within a window size are sent to the recipients before an acknowledgment for the group is received);

Hamilton disclosed the invention substantially as claimed however, Hamilton failed to specifically recite 1) the distributed network of computers is a cluster of computers and 2) the distributed communication mechanism enforces execution order of a plurality of received messages to perform the task.

With regard to point 1, Hamilton failed to specifically recite that the distributed network of computers is a cluster of computers. Nonetheless Hamilton did recite that "the invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network" (See Hamilton col 5, lines 55-60). Accordingly Hamilton's system can be applied to any known distributed computing environment. As evidenced by at least Novaes, clusters are a type of distributed computing environment (see inter alia Col 1, lines 41-61, "distributed computing environment" lines 42-43 and "a distributed system that has the capability of sharing resources is referred to as a cluster" liens 53-54). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize Hamilton's system in a cluster computing environment since Hamilton disclosed his system can be utilized in any distributed computing environment and as evidenced by at least Novaes clusters are a type of distributed computing environment. Furthermore clusters provide increased efficiency in processing tasks since tasks are processed in parallel.

With regard to point 2, Hamilton also failed to specifically recite that the distributed communication mechanism enforces execution order of a plurality of received messages to perform the task. Nonetheless it was widely known in distributed computing systems to enforce an execution order of a plurality of received messages to perform a task, as evidenced by IBM. In an analogous distributed processing environment, IBM disclosed a distributed processing system that enforces the execution order of messages to perform a task (e.g. task ordering to meet task ordering constraints, see inter alia pgs 1-2). IBM enforces the execution order of messages to perform a task since each subtask needed to complete an overall task may require

data from a previous subtask (See for instance the software build example on pgs 4 and 5). IBM

refers to this as a task ordering constraint or data dependency. By ensuring the order constraints

or data dependency of each subtask is met, IBM ensures that the overall task is able to complete.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to

modify Hamilton's system to enforce an execution order of a plurality of received messages to

perform a task, as disclosed by IBM, in order to ensure that all the subtasks needed to complete a

task have all the necessary data they need at time of their execution, this will ensure that each

subtask is able to complete successfully and thereby complete the overall task.

In considering claim 6, Hamilton discloses a computer-implemented method for

processing a task in a clustered computing environment, the method comprising the steps of:

Providing a distributed network communication mechanism executing on a first computer

system in a distributed network wherein the computers in the distributed network cooperate via

ordered messages to perform the task and wherein the cluster communications mechanism

includes a sliding send window that communicates at least one ordered message to a plurality of

other computer systems in the cluster without waiting for an acknowledgment from each

computer system in the distributed network that received an ordered message before sending out

the next ordered message (col. 5, lines 55-60, "the invention may also be practiced in distributed

computing environments where tasks are performed by remote processing devices that are linked

through a communications network"; col. 27, lines 53-54, describing that each message (the

messages in Hamilton are actually portions of messages, called "packets") has "sequence

numbers");

The cluster communication mechanism sending a first ordered message to a first plurality of other computer systems in the cluster; and

The cluster communication mechanism sending a second ordered message to a second plurality of other computer systems in the cluster without waiting for a response to the first ordered messages from each of the first plurality of other computer systems in the cluster (col. 27, lines 51-65, describing that a group of messages within a window size are sent to the recipients before an acknowledgment for the group is received).

Hamilton disclosed the invention substantially as claimed however, Hamilton failed to specifically recite1) the distributed network of computers is a cluster of computers and 2) the distributed communication mechanism enforces execution order of a plurality of received messages to perform the task.

With regard to point 1, Hamilton failed to specifically recite that the distributed network of computers is a cluster of computers. Nonetheless Hamilton did recite that "the invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that a linked through a communications network" (See Hamilton col 5, lines 55-60). Accordingly Hamilton's system can be applied to any known distributed computing environment. As evidenced by at least Novaes, clusters are a distributed computing environment (see inter alia Col 1, lines 41-61, "distributed computing environment" lines 42-43 and "a distributed system that has the capability of sharing resources is referred to as a cluster" liens 53-54). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize Hamilton's system in a cluster computing environment since Hamilton disclosed his system can be utilized in any distributed computing environment and as evidenced

by at least Novaes clusters are a distributed computing environment. Furthermore clusters

provide increased efficiency in processing tasks since tasks are processed in parallel.

With regard to point 2, Hamilton also failed to specifically recite that the distributed

communication mechanism enforces execution order of a plurality of received messages to

perform the task. Nonetheless it was widely known in distributed computing systems to enforce

an execution order of a plurality of received messages to perform a task, as evidenced by IBM.

In an analogous distributed processing environment, IBM disclosed a distributed processing

system that enforces the execution order of messages to perform a task (e.g. task ordering to

meet task ordering constraints, see inter alia pgs 1-2). IBM enforces the execution order of

messages to perform a task since each subtask needed to complete an overall task may require

data from a previous subtask (See for instance the software build example on pgs 4 and 5). IBM

refers to this as a task ordering constraint or data dependency. By ensuring the order constraints

or data dependency of each subtask is met, IBM ensures that the overall task is able to complete.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to

modify Hamilton's system to enforce an execution order of a plurality of received messages to

perform a task, as disclosed by IBM, in order to ensure that all the subtasks needed to complete a

task have all the necessary data they need at time of their execution, this will ensure that each

subtask is able to complete successfully and thereby complete the overall task.

In considering claim 7, Hamilton further discloses that at least one of the first plurality of

other computer system in the cluster responds to the first and second ordered messages by

sending a single acknowledge message to the cluster communication mechanism that

acknowledges both the first and second ordered messages (col. 27, lines 54-65, "ACK request flag is set on every Nth packet... [which] lets sending system 196 know with certainty that all of the packets of the ACK window were received").

In considering claim 8, Hamilton further discloses that the first and second ordered messages each include a header with information (i.e. no "ACK request flag") that indicates whether an acknowledge messages for the first and second ordered messages may be delayed and grouped with at least one subsequent acknowledge message (col. 27, lines 54-65, "ACK request flag is set on every Nth packet... [which] lets sending system 196 know with certainty that all of the packets of the ACK window were received").

In considering claim 9, Hamilton discloses a program product comprising a computer program comprising:

A cluster communication mechanism that includes a sliding send window that communicates at least one ordered message to a plurality of other computer systems in a distributed network system that cooperate via ordered messages to perform a task without waiting for an acknowledge message from any of the plurality of other computer systems before sending out the next ordered message (col. 5, lines 55-60, "the invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network"; col. 27, lines 53-54, describing that each message (the messages in Hamilton are actually portions of messages, called "packets") has "sequence numbers"; col. 27, lines 54-65, "ACK request flag is set on every Nth packet...

[which] lets sending system 196 know with certainty that all of the packets of the ACK window were received") ;

Hamilton disclosed the invention substantially as claimed however, Hamilton failed to specifically recite 1) the distributed network of computers is a cluster of computers and 2) the distributed communication mechanism enforces execution order of a plurality of received messages to perform the task.

With regard to point 1, Hamilton failed to specifically recite that the distributed network of computers is a cluster of computers. Nonetheless Hamilton did recite that "the invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that a linked through a communications network" (See Hamilton col 5, lines 55-60). Accordingly Hamilton's system can be applied to any known distributed computing environment. As evidenced by at least Novaes, clusters are a distributed computing environment (see inter alia Col 1, lines 41-61, "distributed computing environment" lines 42-43 and "a distributed system that has the capability of sharing resources is referred to as a cluster" liens 53-54). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize Hamilton's system in a cluster computing environment since Hamilton disclosed his system can be utilized in any distributed computing environment and as evidenced by at least Novaes clusters are a distributed computing environment. Furthermore clusters provide increased efficiency in processing tasks since tasks are processed in parallel.

With regard to point 2, Hamilton also failed to specifically recite that the distributed communication mechanism enforces execution order of a plurality of received messages to perform the task. Nonetheless it was widely known in distributed computing systems to enforce

an execution order of a plurality of received messages to perform a task, as evidenced by IBM.

In an analogous distributed processing environment, IBM disclosed a distributed processing

system that enforces the execution order of messages to perform a task (e.g. task ordering to

meet task ordering constraints, see inter alia pgs 1-2). IBM enforces the execution order of

messages to perform a task since each subtask needed to complete an overall task may require

data from a previous subtask (See for instance the software build example on pgs 4 and 5). IBM

refers to this as a task ordering constraint or data dependency. By ensuring the order constraints

or data dependency of each subtask is met, IBM ensures that the overall task is able to complete.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to

modify Hamilton's system to enforce an execution order of a plurality of received messages to

perform a task, as disclosed by IBM, in order to ensure that all the subtasks needed to complete a

task have all the necessary data they need at time of their execution, this will ensure that each

subtask is able to complete successfully and thereby complete the overall task.

In considering claim 12, Hamilton further discloses that the first and second ordered

messages each include a header with information (i.e. no "ACK request flag") that indicates

whether an acknowledge messages for the first and second ordered messages may be delayed and

grouped with at least one subsequent acknowledge message (col. 27, lines 54-65, "ACK request

flag is set on every Nth packet... [which] lets sending system 196 know with certainty that all of

the packets of the ACK window were received").

In considering claims 13, 17, and 19, Hamilton further discloses that the ordered message is communicated to the plurality of other computer systems via IP multicast ("IP multicast," col. 12, lines 41-42).

In considering claim 15, Hamilton further discloses that the first plurality of computers includes all computers systems in the second plurality of computers systems (the multicast messages are sent to the same multicast group of recipients).

In considering claim 16, Hamilton further discloses that the first plurality of computer systems comprises the second plurality of computer systems (the multicast messages are sent to the same multicast group of recipients).

Allowable Subject Matter

Claims 2-3 and 21-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 4-5 are allowed.

Response to Arguments

Applicant's arguments are moot in view of the new grounds of rejection set forth.
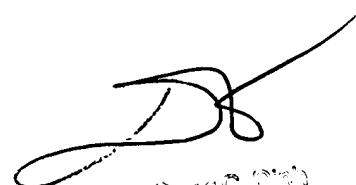
Conclusion

12. The prior art made of record, in PTO-892 form, and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean Reilly whose telephone number is 571-272-4228. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 25, 2006